

What is claimed is:

Sub. B1>

1. A synthetic resin container closure which has a circular top panel wall and a cylindrical skirt wall extending downwardly from the peripheral edge of the top panel wall and which is formed from a synthetic resin as a single unit, wherein

an outer cylindrical sealing protrusion extending downwardly, an inner cylindrical sealing protrusion extending downwardly and an annular sealing ridge located between the outer cylindrical sealing protrusion and the inner cylindrical sealing protrusion and projecting downwardly are formed on the inner surface of the top panel wall;

when the container closure is mounted on the mouth-neck portion of a container, the inner peripheral surface of the outer cylindrical sealing protrusion is brought into close contact with the outer peripheral surface of the mouth-neck portion, the outer peripheral surface of the inner cylindrical sealing protrusion is brought into close contact with the inner peripheral surface of the mouth-neck portion, and the annular sealing ridge is brought into close contact with the top surface of the mouth-neck portion; and

in a state before the container closure is mounted on the mouth-neck portion of the container, the minimum internal diameter D1 of a portion to be brought into close contact with the outer peripheral surface of the mouth-neck portion, of the inner peripheral surface of the outer cylindrical sealing protrusion is smaller than the external diameter D2 of the outer peripheral surface to be brought into close contact, of the mouth-neck portion and satisfies  $0.05 \text{ mm} \leq (D2 - D1) \leq 0.60 \text{ mm}$ , and the maximum external diameter D3 of a portion to be brought into close contact with the mouth-neck portion, of the outer peripheral surface of the inner cylindrical sealing protrusion is larger than the internal diameter D4 of the inner peripheral surface to be

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2. The container closure of claim 1, wherein the outer peripheral surface of the inner cylindrical sealing protrusion extends downwardly in such a manner that it is inclined outward in a radial direction at an inclination angle  $\theta_1$  with respect to the center axis of the container closure and then, extends downwardly in such a manner that it is inclined inward in a radial direction at an inclination angle  $\theta_2$  with respect to the center axis.

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Sub B2

5. The container closure of claim 2, wherein the outer peripheral surface of the inner cylindrical sealing protrusion has the maximum external diameter D3 at a position below, and away from, the inner surface of the top panel wall by a length L1 of 2.50 to 3.50 mm.

6. The container closure of claim 4, wherein the inclination angle  $\theta 3$  of the inner peripheral surface of the inner cylindrical sealing protrusion is larger than the inclination angle  $\theta 1$  of the outer peripheral surface of the inner cylindrical sealing protrusion at a position above the portion having the maximum external diameter D3.

7. The container closure of claim 1, wherein the inner peripheral surface of the outer cylindrical sealing protrusion extends downwardly in such a manner that it is inclined inward in a radial direction at an inclination angle  $\theta 4$  with respect to the center axis and then, extends downward in such a manner that it is inclined outward in a radial direction.

8. The container closure of claim 7, wherein the inclination angle  $\theta 4$  is 13 to 23°.

9. The container closure of claim 7, wherein the outer peripheral surface of the outer cylindrical sealing protrusion extends downwardly in such a manner that it is inclined inward in a radial direction at an inclination angle  $\theta 5$  with respect to the center axis.

10. The container closure of claim 9, wherein the inclination angle  $\theta 5$  is larger than the inclination angle  $\theta 4$  and is 15 to 25°.

11. The container closure of claim 7, wherein the inner peripheral surface of the outer cylindrical sealing protrusion has the minimum internal diameter D1 at a position below, and away from, the inner surface of the top panel wall by a length L2 of 0.60 to 1.50 mm.

12. The container closure of claim 1, wherein a plurality of ribs are formed on the inner surface of a center portion located on the inner side of the inner cylindrical sealing protrusion of the top panel wall, the thickness T1 of the center portion of the top panel wall is 0.80 to 1.20 mm, the thickness T2 of each of the ribs is 0.20 to 1.00 mm, and the total (T1 + T2) of the thickness T1 and the thickness T2 is

1.20 to 1.80 mm.

13. The container closure of claim 12, wherein the thickness T1 is 0.90 to 1.10 mm.

14. The container closure of claim 12, wherein the thickness T2 is 0.30 to 0.50 mm.

15. The container closure of claim 12, wherein the total  
10 (T1 + T2) of the thickness T1 and the thickness T2 is 1.30  
to 1.50 mm.

16. The container closure of claim 12, wherein the ribs extend radially.

17. The container closure of claim 16, wherein the ribs are arranged at equiangular intervals and extend continuously from the center of the center portion to the peripheral edge of the top panel wall.

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35 18. The container closure of claim 12, wherein the ribs have  
a rectangular cross sectional form and when in a bottom view,  
the area of the center portion of the top panel wall is  
represented by S1 and the total area of the ribs is represented  
25 by S2, S1 and S2 satisfy  $0.10S1 < S2 < 0.40S1$ .

19. The container closure of claim 18, wherein S1 and S2 satisfy  $0.15S1 < S2 < 0.35S1$ .

20. A container closure which has a circular top panel wall and a cylindrical skirt wall extending downwardly from the peripheral edge of the top panel wall, a cylindrical sealing protrusion extending downwardly to be brought into close contact with the inner peripheral surface of the mouth-neck portion of a container being formed on the inner surface of

the top panel wall and which is formed from a synthetic resin as a single unit, wherein

- 5 a plurality of ribs are formed on the inner surface of a center portion located on the inner side of the cylindrical sealing protrusion of the top panel wall, the thickness T1 of the center portion of the top panel wall is 0.80 to 1.20 mm, the thickness T2 of each of the ribs is 0.20 to 1.00 mm, and the total (T1 + T2) of the thickness T1 and the thickness T2 is 1.20 to 1.80 mm.

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21. The container closure of claim 20, wherein the thickness T1 is 0.90 to 1.10 mm.

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22. The container closure of claim 20, wherein the thickness T2 is 0.30 to 0.50 mm.

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23. The container closure of claim 20, wherein the total (T1 + T2) of the thickness T1 and the thickness T2 is 1.30 to 1.50 mm.

25

24. The container closure of claim <sup>20</sup>24, wherein the ribs extend radially.

25. The container closure of claim 24, wherein the ribs are arranged at equiangular intervals and extend continuously from the center of the center portion to the peripheral edge of the top panel wall.

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26. The container closure of claim 20, wherein the ribs have a rectangular cross sectional form and when in a bottom view, the area of the center portion of the top panel wall is represented by S1 and the total area of the ribs is represented by S2, S1 and S2 satisfy  $0.10S1 < S2 < 0.40S1$ .

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27. The container closure of claim 26, wherein S1 and S2

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Sub, Bb>

satisfy  $0.15S1 < S2 < 0.35S1$ .

28. A synthetic resin container closure which has a circular top panel wall and a cylindrical skirt wall extending downwardly from the peripheral edge of the top panel wall and which is formed from a synthetic resin as a single unit, wherein

an outer cylindrical sealing protrusion extending downwardly, an inner cylindrical sealing protrusion extending downwardly and an annular sealing ridge which is located between the outer cylindrical sealing protrusion and the inner cylindrical sealing protrusion and projects downwardly are formed on the inner surface of the top panel wall;

when the container closure is mounted on the mouth-neck portion of a container, the inner peripheral surface of the outer cylindrical sealing protrusion is brought into close contact with the outer peripheral surface of the mouth-neck portion, the outer peripheral surface of the inner cylindrical sealing protrusion is brought into close contact with the inner peripheral surface of the mouth-neck portion, and the annular sealing ridge is brought into close contact with the top surface of the mouth-neck portion;

in a state before the container closure is mounted on the mouth-neck portion of the container, the maximum external diameter D3 of a portion to be brought into close contact with the inner peripheral surface of the mouth-neck portion, of the outer peripheral surface of the inner cylindrical sealing protrusion is larger than the internal diameter D4 of the inner peripheral surface to be brought into close contact, of the mouth-neck portion and satisfies  $0.25 \text{ mm} \leq (D3 - D4) \leq 1.50 \text{ mm}$ ; and

the inner peripheral surface of the outer cylindrical sealing protrusion extends downwardly in such a manner that it is inclined outward in a radial direction at an inclination

angle  $\theta 6$  with respect to the center axis and then, extends downwardly and radially outwardly in an arc form.

Sub C1  
29. The container closure of claim 28, wherein the outer peripheral surface of the outer cylindrical sealing protrusion extends substantially parallel with the center axis.

Sub B2  
10 30. The container closure of claim 28, wherein the outer peripheral surface of the inner cylindrical sealing protrusion extends downwardly in such a manner that it is inclined outward in a radial direction at an inclination angle  $\theta 1$  with respect to the center axis of the container closure and then, extends downwardly in such a manner that  
15 it is inclined inward in a radial direction at an inclination angle  $\theta 2$  with respect to the center axis.

Sub C1  
20 31. The container closure of claim 30, wherein the inclination angle  $\theta 1$  is 5 to 25° and the inclination angle  $\theta 2$  is 5 to 30°.

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25 32. The container closure of claim 30, wherein the inner peripheral surface of the inner cylindrical sealing protrusion extends downwardly in such a manner that it is inclined outward in a radial direction at an inclination angle  $\theta 3$  with respect to the center axis and then, extends substantially parallel with the center axis.

30 33. The container closure of claim 30, wherein the outer peripheral surface of the inner cylindrical sealing protrusion has the maximum external diameter D3 at a position below, and away from, the inner surface of the top panel wall by a length L1 of 2.50 to 3.50 mm.

35 34. The container closure of claim 32, wherein the

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姓名	性别	年龄	籍贯	职业	文化程度	政治面貌	健康状况	婚姻状况	子女情况	其他
王德胜	男	45	山东	工人	高中	党员	良好	已婚	2子1女	
李秀英	女	38	河北	教师	大学	党员	良好	已婚	1子1女	
张国强	男	52	河南	农民	初中	群众	一般	已婚	3子2女	
赵子龙	男	28	江苏	学生	大学	团员	良好	未婚	无子女	
陈美华	女	42	浙江	医生	大专	党员	良好	已婚	1子1女	
刘伟明	男	35	广东	工程师	硕士	党员	良好	已婚	2子1女	
孙丽娟	女	30	湖北	护士	中专	团员	良好	已婚	1子1女	
周建民	男	48	四川	干部	高中	党员	良好	已婚	2子1女	
吴晓芳	女	33	湖南	会计	大专	群众	良好	已婚	1子1女	
郑永刚	男	55	安徽	工人	小学	群众	一般	已婚	3子2女	
冯小燕	女	25	福建	学生	大学	团员	良好	未婚	无子女	
马志远	男	40	山西	教师	高中	党员	良好	已婚	2子1女	
林慧敏	女	36	江西	医生	大专	党员	良好	已婚	1子1女	
徐长贵	男	50	广西	农民	初中	群众	一般	已婚	3子2女	
郭小红	女	29	云南	学生	大学	团员	良好	未婚	无子女	
何国强	男	43	贵州	工人	高中	党员	良好	已婚	2子1女	
宋美娟	女	37	陕西	教师	大学	党员	良好	已婚	1子1女	
周建民	男	53	甘肃	干部	高中	党员	良好	已婚	2子1女	
吴晓芳	女	31	宁夏	会计	大专	群众	良好	已婚	1子1女	
郑永刚	男	56	青海	工人	小学	群众	一般	已婚	3子2女	
冯小燕	女	26	新疆	学生	大学	团员	良好	未婚	无子女	
马志远	男	41	内蒙古	教师	高中	党员	良好	已婚	2子1女	
林慧敏	女	38	吉林	医生	大专	党员	良好	已婚	1子1女	
徐长贵	男	51	黑龙江	农民	初中	群众	一般	已婚	3子2女	
郭小红	女	30	辽宁	学生	大学	团员	良好	未婚	无子女	
何国强	男	44	吉林	工人	高中	党员	良好	已婚	2子1女	
宋美娟	女	39	黑龙江	教师	大学	党员	良好	已婚	1子1女	
周建民	男	54	辽宁	干部	高中	党员	良好	已婚	2子1女	
吴晓芳	女	32	吉林	会计	大专	群众	良好	已婚	1子1女	
郑永刚	男	57	辽宁	工人	小学	群众	一般	已婚	3子2女	
冯小燕	女	27	吉林	学生	大学	团员	良好	未婚	无子女	
马志远	男	42	吉林	教师	高中	党员	良好	已婚	2子1女	
林慧敏	女	39	吉林	医生	大专	党员	良好	已婚	1子1女	
徐长贵	男	52	吉林	农民	初中	群众	一般	已婚	3子2女	
郭小红	女	31	吉林	学生	大学	团员	良好	未婚	无子女	
何国强	男	45	吉林	工人	高中	党员	良好	已婚	2子1女	
宋美娟	女	40	吉林	教师	大学	党员	良好	已婚	1子1女	
周建民	男	55	吉林	干部	高中	党员	良好	已婚	2子1女	
吴晓芳	女	33	吉林	会计	大专	群众	良好	已婚	1子1女	
郑永刚	男	58	吉林	工人	小学	群众	一般	已婚	3子2女	
冯小燕	女	28	吉林	学生	大学	团员	良好	未婚	无子女	
马志远	男	43	吉林	教师	高中	党员	良好	已婚	2子1女	
林慧敏	女	40	吉林	医生	大专	党员	良好	已婚	1子1女	
徐长贵	男	53	吉林	农民	初中	群众	一般	已婚	3子2女	
郭小红	女	32	吉林	学生	大学	团员	良好	未婚	无子女	
何国强	男	46	吉林	工人	高中	党员	良好</			